

BIOMAPERII environmental data from the acoustics data stream from RVIB Nathaniel B. Palmer cruises NBP0103, NBP0104, NBP0202, and NBP0204 in the Southern Ocean from 2001-2002 (SOGLOBEC project)

Website: <https://www.bco-dmo.org/dataset/2354>

Data Type: Cruise Results

Version: 1

Version Date: 2003-05-13

Project

» [U.S. GLOBEC Southern Ocean](#) (SOGLOBEC)

» [GLOBEC: Winter Distribution and Success of Southern Ocean Krill](#) (Southern Ocean Krill)

Programs

» [U.S. GLOBal ocean ECosystems dynamics](#) (U.S. GLOBEC)

» [U.S. GLOBal ocean ECosystems dynamics](#) (U.S. GLOBEC)

| Contributors | Affiliation | Role |
|---------------------------------|---|------------------------|
| Wiebe, Peter H. | Woods Hole Oceanographic Institution (WHOI) | Principal Investigator |
| Allison, Dicky | Woods Hole Oceanographic Institution (WHOI BCO-DMO) | BCO-DMO Data Manager |

Abstract

BIOMAPERII environmental data from the acoustics data stream from RVIB Nathaniel B. Palmer cruises NBP0103, NBP0104, NBP0202, and NBP0204 in the Southern Ocean from 2001-2002 (SOGLOBEC project)

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Coverage

Temporal Extent: 2001-04-29 - 2002-09-12

Dataset Description

Environmental Data Stream (CTD Plus)

A Component of the BIOMAPERII Data Acquisition System

These data are from the Environmental Sensing System (ESS) a component of the BIO -Optical Multi-frequency Acoustical and Physical Environmental Recorder (BIOMAPER II)¹ data acquisition system.

BIOMAPERII is a towed package consisting of a number of independent observational components: a multi-frequency sonar (Acoustics) system, a video plankton recorder (VPR) system, and an environmental sensor system (ESS). The incoming ESS environmental data is split into two data streams, one to be merged with the VPR data and one to be merged with the acoustics data. The reason being that there are times when either the Acoustic or VPR system may be turned off. Thus, there is a independent ESS data set to support either the

Acoustic or VPR data streams.

The ESS data reported here are in support of the Acoustics data stream. See the data object "sv120data", 120 kHz acoustic backscatter data set.

References

¹Wiebe, P.H., et al., 2002, BIOMAPER-II: An Integrated Instrument Platform for Coupled Biological and Physical Measurements in Coastal and Oceanic Regimes. IEEE Journal of Oceanic Engineering, **27(3)**:700-716.

²Fofonoff and Millard, 1983, UNESCO technical papers in Marine Sciences, #44.

Questions concerning this data set should be directed to:

Peter Wiebe
Woods Hole Oceanographic Institution
Woods Hole, MA 02543
voice: (508) 289-2313
fax: (508) 457-2169
[e-mail: pwiebe@whoi.edu](mailto:pwiebe@whoi.edu)

Last updated: Apr 20, 2006

Methods & Sampling

These data are from the Environmental Sensing System (ESS) a component of the BIO -Optical Multi-frequency Acoustical and Physical Environmental Recorder (BIOMAPER II)1 data acquisition system.

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Data Files

| File |
|---|
| BMP2_ess.csv (Comma Separated Values (.csv), 144.28 MB) MD5:2fcb2e7387f5c287d4328b4ee61c5560 Primary data file for dataset ID 2354 |

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Parameters

| Parameter | Description | Units |
|------------|--|-------|
| cruiseid | cruise identification, e.g. NBP0204, for Nathaniel B. Palmer cruise 0204 | |
| year | year, local time, e.g. 2004 | |
| brief_desc | brief cruise description, such as broad-scale, process, mooring, etc. | |
| | | |

| | | |
|-------------|---|----------------------|
| tow | tow number | |
| day_local | day, local time (01-31) | |
| month_local | month, local time (1-12) | |
| station | station number, from event log | |
| station_std | standard station number, from event log | |
| yday_local | local day and decimal time | YYY.Y |
| time_local | local time using 24 hour clock and fractions of the minute. | HHmm.m |
| press | depth of sample/data point, given as pressure | decibars |
| temp | temperature of water | degrees C. |
| potemp | potential temperature, θ^2 | degrees C |
| sal | salinity, PSS-78 | dimensionless |
| sigma_0 | potential density, $\sigma\text{-}\theta^2$ | kg/m ³ |
| flvolt | fluorescence (0-5 volts) | volts |
| angle | angle of tow body relative to vertical (0-89 degrees) | |
| vtvel | vertical tow velocity, meters/minute | m/min |
| beam_c | beam attenuation coefficient | /meter ⁻¹ |
| lat | latitude, negative = South | degrees |
| lon | longitude, negative = West | degrees |

Instruments

| | |
|---|---|
| Dataset-specific Instrument Name | Blo-Optical Multi-frequency Acoustical and Physical Environmental Recorder II |
| Generic Instrument Name | Blo-Optical Multi-frequency Acoustical and Physical Environmental Recorder II |
| Dataset-specific Description | BIOMAPERII is a towed package consisting of a number of independent observational components |
| Generic Instrument Description | BIOMAPER II is a set of sensors on a long aluminum frame that resembles the tail of a World War II airplane. A research vessel tows the instrument through the water on a specialized tow cable that sends power to the sensors and brings data back to the ship. People use BIOMAPER II to learn about phytoplankton and zooplankton over areas that are too large to study with the traditional net-and-microscope method. Whereas nets can sample areas up to about 5 meters (16 feet) on a side, BIOMAPER II can record data from 500 meters (1,640 feet) or more of the water column at a time. The instrument's standard suite of sensors were chosen for studying plankton: a five-frequency sonar system, a video plankton recorder and an environmental sensor system (ESS, like the one on MOCNESS). The ESS measures water temperature, salinity, oxygen, chlorophyll and light levels. BIOMAPER II also has room for attaching other instruments for specific uses. The instrument's official name is BIOMAPER-II: the Blo-Optical Multi-frequency Acoustical and Physical Environmental Recorder. The Roman numeral II indicates that it's a redesign of the original BIOMAPER, a prototype that was invented and tested in the mid 1990s. (more information). |

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Deployments

NBP0103

| | |
|--------------------|--|
| Website | https://www.bco-dmo.org/deployment/57636 |
| Platform | RVIB Nathaniel B. Palmer |
| Report | http://globec.who.edu/so-dir/reports/nbp0103/nbp0103.html |
| Start Date | 2001-04-24 |
| End Date | 2001-06-05 |
| Description | Methods & Sampling These data are from the Environmental Sensing System (ESS) a component of the BIO -Optical Multi-frequency Acoustical and Physical Environmental Recorder (BIOMAPER II)1 data acquisition system. |

NBP0104

| | |
|--------------------|--|
| Website | https://www.bco-dmo.org/deployment/57638 |
| Platform | RVIB Nathaniel B. Palmer |
| Report | http://www.ccpo.odu.edu/Research/globec/cruises01/nbp0104_menu.html |
| Start Date | 2001-07-22 |
| End Date | 2001-08-31 |
| Description | Methods & Sampling These data are from the Environmental Sensing System (ESS) a component of the BIO -Optical Multi-frequency Acoustical and Physical Environmental Recorder (BIOMAPER II)1 data acquisition system. |

NBP0202

| | |
|--------------------|--|
| Website | https://www.bco-dmo.org/deployment/57641 |
| Platform | RVIB Nathaniel B. Palmer |
| Report | http://globec.whoi.edu/so-dir/reports/nbp0202/nbp0202b.html |
| Start Date | 2002-04-09 |
| End Date | 2002-05-21 |
| Description | Methods & Sampling These data are from the Environmental Sensing System (ESS) a component of the BIO -Optical Multi-frequency Acoustical and Physical Environmental Recorder (BIOMAPER II)1 data acquisition system. |

NBP0204

| | |
|--------------------|---|
| Website | https://www.bco-dmo.org/deployment/57643 |
| Platform | RVIB Nathaniel B. Palmer |
| Report | http://globec.whoi.edu/so-dir/reports/nbp0204/nbp0204b.html |
| Start Date | 2002-07-31 |
| End Date | 2002-09-18 |
| Description | Also see NBP0204 Cruise Data Report Methods & Sampling These data are from the Environmental Sensing System (ESS) a component of the BIO -Optical Multi-frequency Acoustical and Physical Environmental Recorder (BIOMAPER II)1 data acquisition system. |

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Project Information

U.S. GLOBEC Southern Ocean (SOGLOBEC)

Website: http://www.ccpo.odu.edu/Research/globec_menu.html

Coverage: Southern Ocean

The fundamental objectives of United States Global Ocean Ecosystems Dynamics (U.S. GLOBEC) Program are

dependent upon the cooperation of scientists from several disciplines. Physicists, biologists, and chemists must make use of data collected during U.S. GLOBEC field programs to further our understanding of the interplay of physics, biology, and chemistry. Our objectives require quantitative analysis of interdisciplinary data sets and, therefore, data must be exchanged between researchers. To extract the full scientific value, data must be made available to the scientific community on a timely basis.

GLOBEC: Winter Distribution and Success of Southern Ocean Krill (Southern Ocean Krill)

Coverage: Southern Ocean

The U.S. Global Ocean Ecosystems Dynamics (U.S. GLOBEC) program has the goal of understanding and ultimately predicting how populations of marine animal species respond to natural and anthropogenic changes in climate. Research in the Southern Ocean (SO) indicates strong coupling between climatic processes and ecosystem dynamics via the annual formation and destruction of sea ice. The Southern Ocean GLOBEC Program (SO GLOBEC) will investigate the dynamic relationship between physical processes and ecosystem responses through identification of critical parameters that affect the distribution, abundance and population dynamics of target species. The overall goals of the SO GLOBEC program are to elucidate shelf circulation processes and their effect on sea ice formation and krill distribution, and to examine the factors which govern krill survivorship and availability to higher trophic levels, including penguins, seals and whales. The focus of the U.S. contribution to the international SO GLOBEC program will be on winter processes. This component will focus on juvenile and adult krill and mesozooplankton prey distribution and abundance using a sophisticated instrument package, BIOMAPPER II, which is equipped with an acoustic backscatter sonar system, a video plankton recorder and an environmental sensor system. The system is used in large-scale studies. Additionally, a remotely-operative vehicle will be used to map the distribution and behavior of krill under ice. The result of the integrated SO GLOBEC program will be to improve the predictability of living marine resources, especially with respect to local and global climatic shifts.

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Program Information

U.S. GLOBal ocean ECosystems dynamics (U.S. GLOBEC)

Website: <http://www.usglobec.org/>

Coverage: Global

U.S. GLOBEC (GLOBal ocean ECosystems dynamics) is a research program organized by oceanographers and fisheries scientists to address the question of how global climate change may affect the abundance and production of animals in the sea.

The U.S. GLOBEC Program currently had major research efforts underway in the Georges Bank / Northwest Atlantic Region, and the Northeast Pacific (with components in the California Current and in the Coastal Gulf of Alaska). U.S. GLOBEC was a major contributor to International GLOBEC efforts in the Southern Ocean and Western Antarctic Peninsula (WAP).

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Funding

| Funding Source | Award |
|--|-----------------------------|
| NSF Antarctic Sciences (NSF ANT) | ANT-9910307 |

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